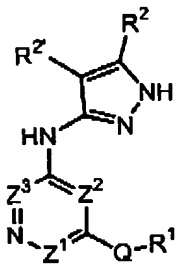
Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (Currently amended): A compound of formula III:



III

or a pharmaceutically acceptable ~~derivative or prodrug~~ salt thereof, wherein:

Z^1 is nitrogen or CR^8, Z^2 is CH, and Z^3 is nitrogen or CR^x, provided that when one of Z^1 or Z^3 is nitrogen, the other of Z^1 or Z^3 is CR^8 or CR^x, respectively;

R^x is $T\text{-}R^3$ or $L\text{-}Z\text{-}R^3$;

Q is selected from $-N(R^4)-$, -O-, –S-, or $-CH(R^6)-$;

R^1 is T-(Ring D);

Ring D is a 5-7 membered monocyclic ring or 8-10 membered bicyclic ring selected from aryl, heteroaryl, heterocyclyl or carbocyclyl, said heteroaryl or heterocyclyl ring having 1-4 ring heteroatoms selected from nitrogen, oxygen or sulfur, wherein each substitutable ring carbon of Ring D is independently substituted by oxo, $T\text{-}R^5$, or $V\text{-}Z\text{-}R^5$, and each substitutable ring nitrogen of Ring D is independently substituted by $-R^4$;

T is a valence bond or a $C_{1\text{-}4}$ alkylidene chain, wherein when Q is $-CH(R^6)-$, a methylene unit of said $C_{1\text{-}4}$ alkylidene chain is optionally replaced by -O-, -S-, $-N(R^4)-$, -CO-, -OC(O)NH-, or $-NHCO_2-$;

Z is a $C_{1\text{-}4}$ alkylidene chain;

L is $-O-$, $-S-$, $-SO-$, $-SO_2-$, $-N(R^6)SO_2-$, $-SO_2N(R^6)-$, $-N(R^6)-$, $-CO-$, $-CO_2-$, $-N(R^6)CO-$, $-N(R^6)C(O)O-$, $-N(R^6)CON(R^6)-$, $-N(R^6)SO_2N(R^6)-$, $-N(R^6)N(R^6)-$, $-C(O)N(R^6)-$, $-OC(O)N(R^6)-$, $-C(R^6)_2O-$, $-C(R^6)_2S-$, $-C(R^6)_2SO-$, $-C(R^6)_2SO_2-$, $-C(R^6)_2SO_2N(R^6)-$,

$-C(R^6)_2N(R^6)-$, $-C(R^6)_2N(R^6)C(O)-$, $-C(R^6)_2N(R^6)C(O)O-$, $-C(R^6)=NN(R^6)-$, $-C(R^6)=N-O-$, $-C(R^6)_2N(R^6)N(R^6)-$, $-C(R^6)_2N(R^6)SO_2N(R^6)-$, or $-C(R^6)_2N(R^6)CON(R^6)-$;

R^2 and $R^{2'}$ are independently selected from -R, -T-W-R^6, or R^2 and $R^{2'}$ are taken together with their intervening atoms to form a fused, 5-8 membered, unsaturated or partially unsaturated, ring having 0-3 ring heteroatoms selected from nitrogen, oxygen, or sulfur, wherein each substitutable ring carbon of said fused ring formed by R^2 and $R^{2'}$ is independently substituted by halo, oxo, -CN, $-NO_2$, $-R^7$, or -V-R^6, and each substitutable ring nitrogen of said ring formed by R^2 and $R^{2'}$ is independently substituted by R^4;

R^3 is selected from -R, -halo, -OR, $-C(=O)R$, $-CO_2R$, -COCOR, $-COCH_2COR$, $-NO_2$, -CN, $-S(O)R$, $-S(O)_2R$, -SR, $-N(R^4)_2$, $-CON(R^7)_2$, $-SO_2N(R^7)_2$, $-OC(=O)R$, $-N(R^7)COR$, $-N(R^7)CO_2$(C_{1-6} aliphatic), $-N(R^4)N(R^4)_2$, $-C=NN(R^4)_2$, -C=N-OR, $-N(R^7)CON(R^7)_2$, $-N(R^7)SO_2N(R^7)_2$, $-N(R^4)SO_2R$, or $-OC(=O)N(R^7)_2$;

each R is independently selected from hydrogen or an optionally substituted group selected from C_{1-6} aliphatic, C_{6-10} aryl, a heteroaryl ring having 5-10 ring atoms, or a heterocyclyl ring having 5-10 ring atoms;

each R^4 is independently selected from $-R^7$, $-COR^7$, $-CO_2$(optionally substituted C_{1-6} aliphatic), $-CON(R^7)_2$, or $-SO_2R^7$;

each R^5 is independently selected from -R, halo, -OR, $-C(=O)R$, $-CO_2R$, -COCOR, $-NO_2$, -CN, $-S(O)R$, $-SO_2R$, -SR, $-N(R^4)_2$, $-CON(R^4)_2$, $-SO_2N(R^4)_2$, $-OC(=O)R$, $-N(R^4)COR$, $-N(R^4)CO_2$(optionally substituted C_{1-6} aliphatic), $-N(R^4)N(R^4)_2$, $-C=NN(R^4)_2$, -C=N-OR, $-N(R^4)CON(R^4)_2$, $-N(R^4)SO_2N(R^4)_2$, $-N(R^4)SO_2R$, or $-OC(=O)N(R^4)_2$;

V is -O-, -S-, -SO-, $-SO_2-$, $-N(R^6)SO_2-$, $-SO_2N(R^6)-$, $-N(R^6)-$, -CO-, $-CO_2-$, $-N(R^6)CO-$, $-N(R^6)C(O)O-$, $-N(R^6)CON(R^6)-$, $-N(R^6)SO_2N(R^6)-$, $-N(R^6)N(R^6)-$, $-C(O)N(R^6)-$, $-OC(O)N(R^6)-$, $-C(R^6)_2O-$, $-C(R^6)_2S-$, $-C(R^6)_2SO-$, $-C(R^6)_2SO_2-$, $-C(R^6)_2SO_2N(R^6)-$, $-C(R^6)_2N(R^6)-$, $-C(R^6)_2N(R^6)C(O)-$, $-C(R^6)_2N(R^6)C(O)O-$, $-C(R^6)=NN(R^6)-$, $-C(R^6)=N-O-$, $-C(R^6)_2N(R^6)N(R^6)-$, $-C(R^6)_2N(R^6)SO_2N(R^6)-$, or $-C(R^6)_2N(R^6)CON(R^6)-$;

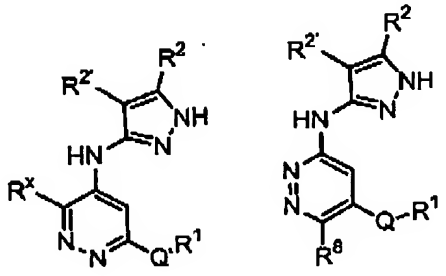
W is $-C(R^6)_2O-$, $-C(R^6)_2S-$, $-C(R^6)_2SO-$, $-C(R^6)_2SO_2-$, $-C(R^6)_2SO_2N(R^6)-$, $-C(R^6)_2N(R^6)-$, -CO-, $-CO_2-$, $-C(R^6)OC(O)-$, $-C(R^6)OC(O)N(R^6)-$, $-C(R^6)_2N(R^6)CO-$, $-C(R^6)_2N(R^6)C(O)O-$, $-C(R^6)=NN(R^6)-$, $-C(R^6)=N-O-$, $-C(R^6)_2N(R^6)N(R^6)-$, $-C(R^6)_2N(R^6)SO_2N(R^6)-$, $-C(R^6)_2N(R^6)CON(R^6)-$, or $-CON(R^6)-$;

each R^6 is independently selected from hydrogen or an optionally substituted C_{1-4} aliphatic group, or two R^6 groups on the same nitrogen atom are taken together with the nitrogen atom to form a 5-6 membered heterocyclyl or heteroaryl ring;

each R^7 is independently selected from hydrogen or an optionally substituted C_{1-6} aliphatic group, or two R^7 on the same nitrogen are taken together with the nitrogen to form a 5-8 membered heterocyclyl or heteroaryl ring; and

R^8 is selected from -R, halo, -OR, -C(=O)R, $-CO_2R$, -COCOR, $-NO_2$, -CN, -S(O)R, $-SO_2R$, -SR, $-N(R^4)_2$, $-CON(R^4)_2$, $-SO_2N(R^4)_2$, $-OC(=O)R$, $-N(R^4)COR$, $-N(R^4)CO_2$(optionally substituted C_{1-6} aliphatic), $-N(R^4)N(R^4)_2$, $-C=NN(R^4)_2$, -C=N-OR, $-N(R^4)CON(R^4)_2$, $-N(R^4)SO_2N(R^4)_2$, $-N(R^4)SO_2R$, or $-OC(=O)N(R^4)_2$.

Claim 2 (Currently amended): The compound according to claim 1, wherein Q is $-N(R^4)-$, -S-, or $-CH(R^6)-$, and said compound is of formula **IIIa** or **IIIb**



IIIa **IIIb**

or a pharmaceutically acceptable ~~derivative or prodrug~~ salt thereof.

Claim 3 (Original): The compound according to claim 2, wherein ~~said compound has one or more features~~ one or more compound variables are selected from the group consisting of:

(a) R^x is hydrogen, alkyl- or dialkylamino, acetamido, or a C_{1-4} aliphatic group;

(b) R^1 is T-(Ring D), wherein T is a valence bond or a methylene unit;

(c) Ring D is a 5-7 membered monocyclic or an 8-10 membered bicyclic aryl or heteroaryl ring; and

(d) R^2 is –R or –T-W-R^6 and $R^{2'}$ is hydrogen, or R^2 and $R^{2'}$ are taken together to form an optionally substituted benzo ring.

Claim 4 (Original): The compound according to claim 3, wherein:

(a) R^x is hydrogen, alkyl- or dialkylamino, acetamido, or a C_{1-4} aliphatic group;

(b) R^1 is T-(Ring D), wherein T is a valence bond or a methylene unit;

(c) Ring D is a 5-7 membered monocyclic or an 8-10 membered bicyclic aryl or heteroaryl ring; and

(d) R^2 is –R or –T-W-R^6 and $R^{2'}$ is hydrogen, or R^2 and $R^{2'}$ are taken together to form an optionally substituted benzo ring.

Claim 5 (Original): The compound according to claim 3, wherein ~~said compound has one or more features~~ one or more compound variables are selected from the group consisting of:

(a) R^1 is T-(Ring D), wherein T is a valence bond, and Q is -S- or -NH-;

(b) Ring D is a 5-6 membered monocyclic or an 8-10 membered bicyclic aryl or heteroaryl ring; and

(c) R^2 is –R and $R^{2'}$ is hydrogen, wherein R is selected from hydrogen, C_{1-6} aliphatic, phenyl, a 5-6 membered heteroaryl ring, or a 5-6 membered heterocyclic ring.

Claim 6 (Original): The compound according to claim 5, wherein:

(a) R^1 is T-(Ring D), wherein T is a valence bond, and Q is -S- or -NH-;

(b) Ring D is a 5-6 membered monocyclic or an 8-10 membered bicyclic aryl or heteroaryl ring; and

(c) R^2 is -R and $R^{2'}$ is hydrogen, wherein R is selected from hydrogen, C_{1-6} aliphatic, phenyl, a 5-6 membered heteroaryl ring, or a 5-6 membered heterocyclic ring.

Claim 7 (Original): The compound according to claim 5, wherein ~~said compound has one or more features~~ one or more compound variables are selected from the group consisting of:

(a) R^x is hydrogen methyl, ethyl, propyl, cyclopropyl, isopropyl, methylamino or acetamido;

(b) R^1 is T-(Ring D), wherein T is a valence bond and Ring D is a 5-6 membered aryl or heteroaryl ring, wherein Ring D is optionally substituted with one to two groups selected from -halo, -CN, -NO_2, -$N(R^4)_2$, optionally substituted C_{1-6} aliphatic group,

-OR, -CO_2R, -$CON(R^4)_2$, -$OCO(R^4)_2$, -$N(R^4)COR$, -$N(R^4)SO_2R$,
-$N(R^6)COCH_2CH_2N(R^4)_2$, or -$N(R^6)COCH_2CH_2CH_2N(R^4)_2$; and

(c) R^2 is hydrogen or a substituted or unsubstituted C_{1-6} aliphatic.

Claim 8 (Original): The compound according to claim 7, wherein:

(a) R^x is hydrogen methyl, ethyl, propyl, cyclopropyl, isopropyl, methylamino or acetamido;

(b) R^1 is T-(Ring D), wherein T is a valence bond and Ring D is a 5-6 membered aryl or heteroaryl ring, wherein Ring D is optionally substituted with one to two groups selected from -halo, -CN, -NO_2, -$N(R^4)_2$, optionally substituted C_{1-6} aliphatic group, -OR, -CO_2R, -$CON(R^4)_2$, -$OCO(R^4)_2$, -$N(R^4)COR$, -$N(R^4)SO_2R$, -$N(R^6)COCH_2CH_2N(R^4)_2$, or -$N(R^6)COCH_2CH_2CH_2N(R^4)_2$; and

(c) R^2 is hydrogen or a substituted or unsubstituted C_{1-6} aliphatic.

Claim 9 (Previously presented): A compound selected from the group consisting of:

N^5-(1*H*-Indazol-6-yl)-N^3-(5-methyl-1*H*-pyrazol-3-yl)-pyridazine-3,5-diamine;

N-{4-[6-(5-Methyl-1*H*-pyrazol-3-ylamino)-pyridazin-4-ylsulfanyl]-phenyl}-acetamide;

[5-(3-Methoxy-benzyl)-pyridazin-3-yl]-(5-methyl-1*H*-pyrazol-3-yl)-amine;

N^3-(5-Cyclopropyl-1*H*-pyrazol-3-yl)-N^5-pyridin-3-ylmethyl-pyridazine-3,5-diamine;

[5-(Benzothiazol-6-ylsulfanyl)-pyridazin-3-yl]-(5-cyclopropyl-1*H*-pyrazol-3-yl)-amine;

{4-[6-(5-Cyclopropyl-1*H*-pyrazol-3-ylamino)-pyridazin-4-yloxy]-phenyl}-acetonitrile;

N-{4-[6-(1*H*-Indazol-3-ylamino)-pyridazin-4-ylamino]-phenyl}-methanesulfonamide;

(1*H*-Indazol-3-yl)-[5-(thiophen-2-ylmethylsulfanyl)-pyridazin-3-yl]-amine;

N^5-(5-Methyl-1*H*-pyrazol-3-yl)-N^3-pyridin-3-ylmethyl-pyridazine-3,5-diamine;

[6-(Benzothiazol-6-ylsulfanyl)-pyridazin-4-yl]-(5-methyl-1*H*-pyrazol-3-yl)-amine;

{4-[5-(5-Methyl-1*H*-pyrazol-3-ylamino)-pyridazin-3-yloxy]-phenyl}-acetonitrile;

N^5-(5-Cyclopropyl-1*H*-pyrazol-3-yl)-N^3-(1*H*-indazol-6-yl)-pyridazine-3,5-diamine;

N-{4-[5-(5-Cyclopropyl-1*H*-pyrazol-3-ylamino)-pyridazin-3-ylsulfanyl]-phenyl}-acetamide;

N^5-(1*H*-Indazol-3-yl)-N^3-(1*H*-indazol-6-yl)-pyridazine-3,5-diamine; and

(1*H*-Indazol-3-yl)-[6-(3-methoxy-phenylsulfanyl)-pyridazin-4-yl]-amine.

Claim 10 (Original): A composition comprising a compound according to any of claims 1-9, and a pharmaceutically acceptable carrier.

Claim 11 (Original): The composition according to claim 10, further comprising an additional therapeutic agent.

Claim 12 (Original): A method of inhibiting Aurora-2 or GSK-3 activity in a biological sample comprising the step of contacting said biological sample with a compound according to any one of claims 1-9.

Claim 13 (cancelled)

Claim 14 (cancelled)

Claim 15 (Currently amended): A method of treating ~~an Aurora-2 mediated disease~~ cancer, which method comprises administering to a patient in need of such a treatment a therapeutically effective amount of a composition according to claim 10.

Claim 16 (Currently amended): The method according to claim 15, wherein said ~~disease~~ cancer is selected from colon, breast, stomach, or ovarian cancer.

Claim 17 (Currently amended): The method according to claim 16~~5~~, wherein said method further comprises administering an additional therapeutic agent.

Claim 18 (Original): The method according to claim 17~~5~~, wherein said additional therapeutic agent is a chemotherapeutic agent.

Claim 19 (cancelled)

Claim 20 (cancelled)

Claim 21 (Currently amended): A method of ~~method of~~ treating ~~a GSK-3-mediated disease~~ diabetes, which method comprises administering to a patient in need of such a treatment a therapeutically effective amount of a composition according to claim 10.

Claim 22 (cancelled)

Claim 23 (cancelled)

Claim 24 (Currently amended): A method of enhancing glycogen synthesis ~~or lowering blood levels of glucose~~ in a patient in need thereof, which method comprises administering to said patient a therapeutically effective amount of a composition according to claim 10.

Claim 25 (Currently amended): A method of treating Alzheimer's disease by inhibiting the production of hyperphosphorylated Tau protein in a patient, which method comprises administering to a patient in need thereof a therapeutically effective amount of a composition according to claim 10.

Claim 26 (Currently amended): A method of treating schizophrenia by inhibiting the phosphorylation of β-catenin, which method comprises administering to a patient in need thereof a therapeutically effective amount of a composition according to claim 10.

Claim 27 (New) A method of lowering blood levels of glucose in a patient in need thereof, which method comprises administering to said patient a therapeutically effective amount of a compound according to any one of claims 1-9 or a composition according to claim 10.

Claim 28 (New) A method of treating schizophrenia, which method comprises administering to a patient in need thereof a therapeutically effective amount of a compound according to any one of claims 1-9 or a composition according to claim 10.

Claim 29 (New) A method of treating Alzheimer's disease, which method comprises administering to a patient in need thereof a therapeutically effective amount of a compound according to any one of claims 1-9 or a composition according to claim 10.

Claim 30 (New) A method of treating a disorder of the central nervous system, which method comprises administering to a patient in need thereof a therapeutically effective amount of a compound according to any one of claims 1-9 or a composition according to claim 10.

Claim 31 (New) The method of claim 30, wherein the disorder of the central nervous system is selected from the group consisting of manic depressive disorder, neurodegenerative diseases, and cardiomyocete hypertrophy.